

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

1-58. (Cancelled).

59. (Currently Amended) An intercoupling component for receiving an array of contacts comprising:

a substrate formed of a non-conductive material and having an upper surface, the substrate including a plurality of holes disposed on its upper surface and arranged in a predetermined footprint corresponding to the array of contacts; and

a plurality of signal contacts, each signal contact disposed at least partially within ~~one of the plurality of holes on the substrate,~~ [[a]]

the substrate including a plurality of cavities, each of the cavities disposed between adjacent signal contacts and having a shape selected to adjust the differential impedance between the adjacent signal contacts.

60. (Previously presented) The intercoupling component of claim 59 wherein the cavities are formed on the upper surface of the substrate and are open to air.

61. (Previously presented) The intercoupling component of claim 59 wherein the cavities are formed between the upper surface and a lower surface of the substrate and are open to air.

62. (Previously presented) The intercoupling component of claim 59 wherein the substrate is formed of a material having a first dielectric constant, the intercoupling component further comprising:

dielectric material disposed within the cavity and having a second dielectric constant.

63. (Previously Presented) The intercoupling component of claim 62 wherein the first dielectric constant is lower than the second dielectric constant.

64. (Currently Amended) The intercoupling component of claim 59 further comprising ~~[[an]]~~ air-filled glass ~~sphere~~ spheres disposed within ~~a cavity~~ the cavities.

65. (Currently Amended) The intercoupling component of claim ~~59~~ 63 wherein the dielectric material disposed in the cavity comprises ~~further comprising~~ an insert formed of ~~Teflon®~~ a material having a lower dielectric constant than the substrate. ~~disposed within a cavity~~

66. (Currently Amended) The intercoupling component of claim 59, wherein at least some of the plurality of signal contacts are adapted to transmit single-ended signals.

67. (Currently Amended) The intercoupling component of claim 59 further comprising a plurality of ground contacts each disposed at least partially within one of the plurality of holes and ~~wherein at least some of the plurality of contacts are~~ adapted to connect to a reference ground circuit of a digital or analog transmission system.

68. (Currently Amended) The intercoupling component of claim 59, wherein the plurality of signal contacts comprises:

two or more pair of signal contacts, each pair of signal contacts adapted to transmit differential signals.

69. (Currently Amended) The intercoupling component of claim 68 wherein at least some of the cavities are formed between each pair of signal contacts adapted to transmit differential signals.

70. (Currently Amended) The intercoupling component of claim 68 , further comprising ~~wherein the plurality of contacts further comprises:~~

a reference ground contact grouped with each pair of signal contacts, wherein the reference ground contact is configured to electrically connect with an electrical ground circuit of a digital or analog transmission system.

71. (Currently Amended) The intercoupling component of claim 59 further comprising:

a frame formed of electrically conductive material disposed at least partially around one or more signal contacts, wherein the frame is adapted to electrically connect to a chassis ground circuit of a digital or analog transmission system.

72. (Previously presented) The intercoupling component of claim 59 further comprising:

a shield member formed of electrically conductive material at least partially disposed within the substrate, wherein the shield member is configured to electrically connect with a chassis ground circuit of a digital or analog transmission system.

73. (Previously presented) The intercoupling component of claim 72 further comprising:

a frame formed of electrically conductive material located around the pairs of signal contacts and electrically connected to the chassis ground circuit.

74. (Currently Amended) An intercoupling component comprising:

a substrate formed of non-conductive material having a first dielectric constant, the substrate having an upper surface and including a first hole and a second hole disposed on its upper surface;

a first conductor disposed at least partially within the first hole; and

a second conductor disposed at least partially within the second hole,  
the substrate including a cavity disposed between the first and second conductor, wherein the cavity is filled with non-conductive material having a second dielectric constant and having a shape selected to adjust the differential impedance between the first and second conductor.

75. (Currently Amended) The intercoupling component of claim 74 wherein ~~the cavity is filled with air~~ the non-conductive material having a second dielectric constant is air.

76. (Previously presented) The intercoupling component of claim 74 wherein the cavity is disposed on the upper surface of the substrate.

77. (Previously presented) The intercoupling component of claim 74 wherein the cavity is disposed between the upper surface and a lower surface of the substrate.

78. (Previously presented) The intercoupling component of claim 74 wherein the first dielectric constant is less than the second dielectric constant.

79. (Previously presented) The intercoupling component of claim 74 wherein the first dielectric constant is greater than the second dielectric constant.

80. (Currently Amended) An apparatus for use in a digital or analog transmission system, ~~the circuit card~~ apparatus comprising:

a printed circuit board; and

an interconnection device coupled to the printed circuit board, the interconnection device comprising:

a substrate formed of a non-conductive material and having an upper surface, the substrate including a plurality of holes disposed on its upper surface and arranged in a predetermined footprint corresponding to an array of contacts; and

a plurality of signal contacts, each signal contact disposed at least partially within one of the plurality of holes ~~a hole on the substrate~~,

the substrate including a plurality of cavities, each of the cavities disposed between adjacent signal contacts and having a shape selected to adjust the differential impedance between adjacent signal contacts.

81. (Previously presented) The apparatus of claim 80 wherein the cavities are formed on the upper surface of the substrate and are open to air.

82. (Previously presented) The apparatus of claim 80 wherein the cavities extend between the top and bottom surfaces of the substrate.

83. (Previously presented) The apparatus of claim 80 wherein the substrate is formed of a material having a first dielectric constant, the intercoupling component further comprising: dielectric material disposed within the cavity and having a second dielectric constant.

84. (Previously presented) The apparatus of claim 83 wherein the first dielectric constant is lower than the second dielectric constant.

85. (Currently Amended) The apparatus of claim 80, wherein at least some of the plurality of signal contacts are adapted to transmit single-ended signals.

86. (Currently Amended) The apparatus of claim 80 further comprising a plurality of ground contacts each disposed within one of the plurality of holes and ~~wherein at least some of the plurality of contacts are~~ adapted to connect to a reference ground circuit of a digital or analog transmission system.

87. (Currently Amended) The apparatus of claim 80, wherein the plurality of signal contacts comprises:

two or more pair of signal contacts, each pair of signal contacts adapted to transmit differential signals.

88. (Currently Amended) The apparatus of claim 87 wherein at least some of the cavities are formed between each pair of signal contacts adapted to transmit differential signals.

89. (Currently Amended) The apparatus of claim 87, further comprising ~~wherein the plurality of contacts further comprises:~~

a reference ground contact grouped with each pair of signal contacts, wherein the reference ground contact is configured to electrically connect with an electrical ground circuit of a digital or analog transmission system.